

This Page Is Inserted by IFW Operations  
and is not a part of the Official Record

## **BEST AVAILABLE IMAGES**

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

**IMAGES ARE BEST AVAILABLE COPY.**

**As rescanning documents *will not* correct images,  
please do not report the images to the  
Image Problem Mailbox.**

What is claimed is:

1. A laser diode drive circuit for an optical disc recording and/or reproducing apparatus, comprising:

a plurality of laser diodes for outputting laser beams having different wavelengths;

a switch circuit for selectively connecting a required laser diode from said plurality of laser diodes;

a laser diode drive power supply circuit for driving the laser diode selectively connected by said switch circuit;

a photodiode for detecting at least part of laser beams emitted from said laser diode to convert a detected part of laser beams into an electrical signal;

a plurality of current-to-voltage conversion amplifiers connected to an output of said photodiode, being capable of adjusting conversion resistance values and having differently designed center conversion resistance values; and

an automatic power control circuit connected to outputs of said current-to-voltage conversion amplifiers to output a feedback signal to said laser diode drive power supply circuit.

2. The laser diode drive circuit for an optical disc recording and/or reproducing apparatus according to claim 1, wherein

said photodiode is composed of a single diode and switch circuits for selectively connecting a required current-to-voltage conversion amplifier are provided both between an output of said photodiode and inputs of said plurality of current-to-voltage conversion amplifiers, and between outputs of said plurality of current-to-voltage conversion amplifiers and an input of said automatic power control circuit.

3. The laser diode drive circuit for an optical disc recording and/or reproducing apparatus according to claim 1, wherein

said photodiode is composed of a plurality of diodes,

outputs of said respective diodes are connected to inputs of corresponding current-to-voltage conversion amplifiers of said plurality of current-to-voltage conversion amplifiers respectively and

switch circuits for selectively connecting required current-to-voltage conversion amplifiers are provided between outputs of said plurality of current-to-voltage conversion amplifiers and an input of said automatic power control circuit.

4. An amplifying circuit comprising:

a plurality of current-to-voltage conversion amplifiers connected in parallel, being capable of

adjusting conversion resistance values and having differently designed center conversion resistance values; and

change-over switches provided at the input sides and output sides of said plurality of current-to-voltage conversion amplifiers, whereby one amplifier is selectively connected under change-over control of said switches.

5. An optical disc recording and/or reproducing apparatus including a laser diode drive circuit, said laser diode drive circuit comprising:

a plurality of laser diodes for outputting laser beams having different wavelengths;

a switch circuit for selectively connecting a required laser diode from said plurality of laser diodes;

a laser diode drive power supply circuit for driving the laser diode selectively connected by said switch circuit;

a photodiode for detecting at least part of laser beams emitted from said laser diode to convert a detected part of laser beams into an electrical signal;

a plurality of current-to-voltage conversion amplifiers connected to an output of said photodiode, being capable of adjusting conversion resistance values and having differently designed center conversion resistance values; and

an automatic power control circuit connected to

outputs of said current-to-voltage conversion amplifiers to output a feedback signal to said laser diode drive power supply circuit.

6. A laser diode drive method for an optical disc recording and/or reproducing apparatus, comprising the steps of:

selectively connecting a laser diode from a plurality of laser diodes having different output wavelengths to a laser diode drive power supply circuit with a first switch circuit;

driving said laser diode drive power supply circuit to allow the connected laser diode to emit laser beams;

detecting at least part of laser beams emitted from said laser diode to convert said detected part of laser beams into an electrical signal by a photodiode;

outputting said electrical signal to a corresponding current-to-voltage conversion amplifier of a plurality of current-to-voltage conversion amplifiers, the corresponding amplifier being capable of adjusting conversion resistance values and having differently designed center conversion resistance values, wherein said electrical signal is current-to-voltage-converted and is amplified;

selectively connecting an output of a required current-to-voltage conversion amplifier from said plurality of current-to-voltage conversion amplifiers to an automatic

power control circuit with a second switch circuit;

generating a feedback signal from said electrical signal, which has been current-to-voltage-converted and amplified, by said automatic power control circuit; and

outputting said feedback signal to said laser diode drive power supply circuit to effect a closed loop control.